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Results of the Archbold Expeditions. No. 82 The Crane Flies of the Fourth Archbold Expedition to New Guinea (Diptera, Tipulidae), 2

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The first report on the crane flies of the Fourth Archbold Expedition was published in 1960 (Alexander, Amer. Mus. Novitates, no. 1983, 24 pp., 22 figs.). In the present paper I continue the discussion of the rich materials taken by Geoffrey M. Tate and Leonard J. Brass in northeastern Territory of Papua in 1953, describe several new species, and record certain previously described forms of particular rarity. A discussion of the collecting areas was provided in the earlier paper. The types of the new species are deposited in the collection of the American Museum of Natural History.

SUBFAMILY LIMONIINAE

TRIBE LIMONIINI

Helius (*Rhampholimnobia*) *diffusus* Alexander

Helius (*Rhampholimnobia*) *diffusus* ALEXANDER, 1941, Proc. Linnean Soc. New South Wales, vol. 46, p. 141, fig. 3 (venation).

Type from Aitape, Territory of New Guinea, taken November 1, 1937, by F. H. Taylor. Also taken at Hollandia, Netherlands New

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Guinea, January, 1945, by Harry Hoogstraal. Territory of Papua: Moi Biri Bay, Baiawa, altitude 0–30 meters, May 6–10, 1953 (Tate).

Helius (Rhampholimnobia) nimbus Alexander

Helius (Rhampholimnobia) nimbus ALEXANDER, 1941, Proc. Linnean Soc. New South Wales, vol. 46, pp. 141–142, fig. 4 (venation).

Types from Aitape and Wewak, Territory of New Guinea, taken by F. H. Taylor. Also taken at Hollandia, Netherlands New Guinea, in January, 1945, by Harry Hoogstraal. Territory of Papua: Moi Biri Bay, Baiawa, altitude 0–30 meters, May 6–10, 1953 (Tate). Biniguni, Gwariu River, altitude 150 meters, July 27 to August 14, 1953 (Tate). Peria Creek, Kwagira River, altitude 50 meters, August 14 to September 6, 1953 (Tate).

TRIBE HEXATOMINI

***Austrolimnophila (Austrolimnophila) diacanthophora*, new species**

Figures 1, 6

DIAGNOSIS: Mesonotal prescutum darker on anterior half, color produced backward over dorsopleural region; halteres elongate, stem yellow, knob a little darker; fore and middle femora darker, remainder of legs yellow; wings grayish yellow, restrictedly patterned with pale brown; inner end of cell first M_2 arcuated; male hypopygium with posterior border of tergite terminating in two obtuse black lobes; interbase unequally bispinous; outer dististyle with high basal crest.

DESCRIPTION: Male: Length, about 8 mm.; wing, 9 mm.; antenna, about 2 mm. Female: Length, about 8 mm.; wing, 9.5 mm. Rostrum and palpi yellow. Antennae moderately long, as shown by measurements; yellow, outer segments a little darker; flagellar segments elongate, subequal to longest verticils. Head gray.

Pronotum yellow. Mesonotal prescutum darker in front and on sides, color continuing backward across dorsopleural region; posterior part of prescutum medially more brownish gray, intermediate portions, including lateral borders, yellow; scutum brownish yellow, scutellum and postnotum light gray pruinose. Pleura yellow, pteropleurite and metapleura slightly darker. Halteres elongate, stem yellow, knob a trifle darker. Legs with coxae and trochanters yellow; fore and middle femora infuscated, posterior pair clearer yellow; tibiae and basitarsi yellow, outer tarsal segments a trifle darker. Wings (fig. 1) weakly grayish yellow, costal border light yellow; restricted pale brown pattern, including arculus, origin of R_s , cord, and outer end of cell first M_2 ; further marginal spots at ends of all longitudinal veins excepting

R_5 and M_1 ; veins yellow, a little darker in clouded areas. Longitudinal veins beyond general level of origin of R_s with macrotrichia, lacking on Sc ; first A with trichia on outer third before tip and on outer two-thirds of second A . Venation: Cell first M_2 long, nearly equal to M_4 , inner end strongly arcuated; m-cu at or beyond midlength of M_{3+4} ; cell M_1 about one-third to two-thirds longer than petiole.

Abdominal tergites yellowish brown, hypopygium darker. Male hypopygium (fig. 6) with tergite, t , large, narrowed outwardly, posterior margin with two large, rounded lobes separated by deep and narrow notch, inner margins of lobes heavy black, disk and outer parts pale, with strong setae. Basistyle, b , with mesal face at base produced into large, rounded lobe, its surface with abundant microscopic pale spicules, more basal ones produced into delicate, hair-like points. Interbase, i , distinctive, appearing as large, sclerotized structure bearing two unequal spines, outer larger, bent at right angle and narrowed into long point; inner spine gently curved into acute point. Dististyles, d , terminal, outer style long and narrow, constricted at near midlength; inner style with large, flattened lobe on outer margin; beak slender, narrowed into decurved spine.

Types: Holotype, male, north slope of Mt. Dayman, Maneau Range, Territory of Papua, altitude 1550 meters, June 30 to July 13, 1953 (Tate).

Austrolimnophila (*Austrolimnophila*) *diacanthophora* is allied to such species as *A. (A.) antiqua* (Skuse), *A. (A.) nebrias* Alexander, and others, and differs from all previously described forms in the structure of the male hypopygium.

Austrolimnophila (*Austrolimnophila*) *discoboloides* Alexander

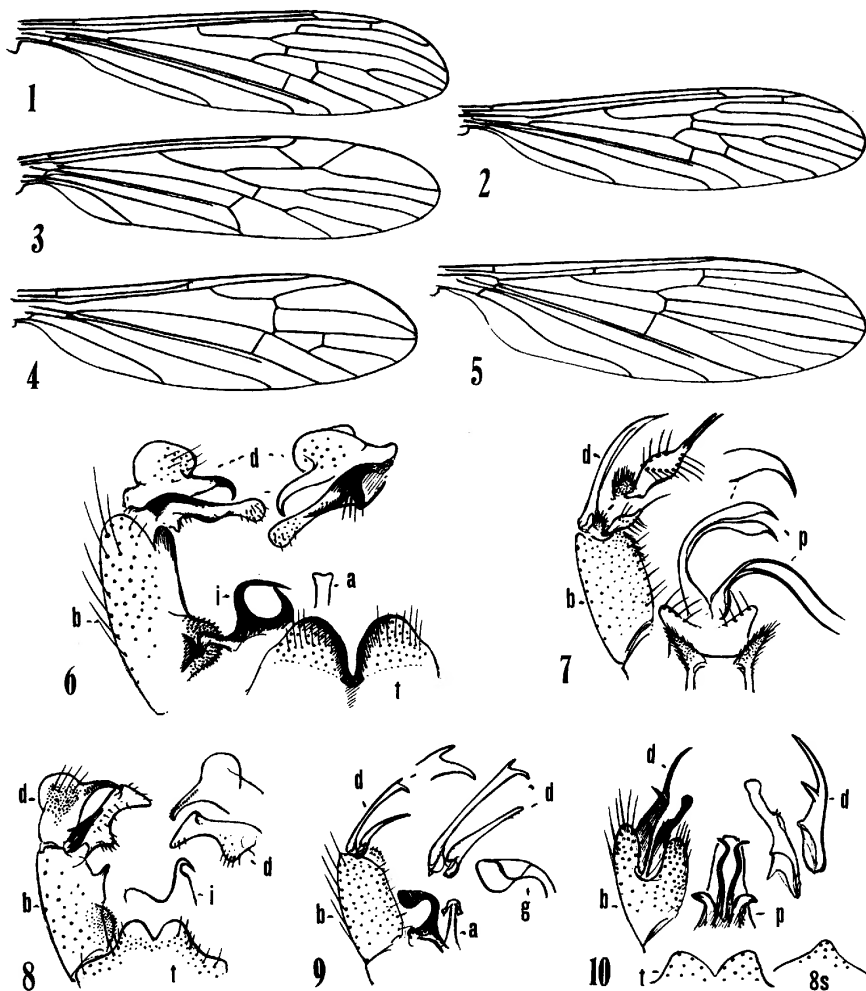
Austrolimnophila (*Austrolimnophila*) *discoboloides* ALEXANDER, 1946, Ann. Mag. Nat. Hist., ser. 11, vol. 13, pp. 741-743.

Types from Mt. Tafa, Territory of Papua, altitude 8500 feet, March, 1934 (Cheesman). North slope of Mt. Dayman, Maneau Range, Territory of Papua, altitude 2230 meters, May 17 to June 19, 1953 (Tate).

Austrolimnophila (*Austrolimnophila*) *minor*, new species

Figures 2, 8

DIAGNOSIS: Size very small (wing of male, 8 mm.); general coloration of mesonotum light yellowish gray, pleura yellow, sides of mesonotum and pleura light brown; antennae and palpi yellow; wings yellow, with restricted and inconspicuous brown pattern; R_{2+3+4} about three times basal section of R_5 ; m-cu at near midlength of M_{3+4} ; male hypo-



FIGS. 1-5. Venation. 1. *Austrolimnophila* (*Austrolimnophila*) *diacanthophora*, new species. 2. *Austrolimnophila* (*Austrolimnophila*) *minor*, new species. 3. *Trentepohlia* (*Mongoma*) *liponeura*, new species. 4. *Gonomyia* (*Lipophleps*) *bigeminata*, new species. 5. *Erioptera* (*Meterioptera*) *thelema*, new species.

FIGS. 6-10. Male hypopygium. 6. *Austrolimnophila* (*Austrolimnophila*) *diacanthophora*, new species. 7. *Gonomyia* (*Lipophleps*) *bigeminata*, new species. 8. *Austrolimnophila* (*Austrolimnophila*) *minor*, new species. 9. *Erioptera* (*Meterioptera*) *thelema*, new species. 10. *Erioptera* (*Erioptera*) *scolostyla*, new species.

Symbols: a, aedeagus; b, basistyle; d, dististyle; g, gonopophysis; i, interbase; p, phallosome; s, sternite; t, tergite.

pygium with tergite simple, posterior margin with two pale, rounded, glabrous lobes separated by narrow, U-shaped notch; apex of outer dististyle slender, inner style with lower margin near base dilated, setiferous.

DESCRIPTION: Male: Length, about 8 mm.; wing, 8 mm.; antenna, about 2.6 mm. Rostrum brownish yellow, palpi yellow. Antennae light yellow, outer flagellar segments slightly darker; flagellar segments elongate, much exceeding verticils and dense, shorter, white pubescence. Head gray; anterior vertex very narrow, about one-third of diameter of scape.

Pronotum, anterior third of prescutum, and ventral two-thirds of mesopleura light yellow, remainder of mesonotum light yellowish gray, sides of prescutum and dorsal mesopleura, including dorsopleural membrane, narrowly light brown. Halteres elongate, yellow. Legs with all coxae and trochanters light yellow; remainder of legs broken. Wings (fig. 2) yellow, with restricted and inconspicuous brown pattern, including small spots at arculus, origin of R_s , stigma, cord, outer end of cell first M_2 , and similar small marginal spots at ends of all longitudinal veins excepting R_5 and M_1 , larger on R_{1+2} , R_3 , and second A; veins light yellow, brown in patterned areas. Macrotrichia on longitudinal veins beyond origin, including virtually all of M and outer two-thirds of Cu and anals, being very abundant on first A, sparse and scattered on second A. Venation: R_{2+3+4} about three times basal section of R_5 ; cell first M_2 elongate, inner end arcuated; cell M_1 about twice petiole; m-cu near midlength of M_{3+4} .

Abdominal tergites brownish yellow, incisures vaguely darker, sternites more yellow. Male hypopygium (fig. 8) with tergite, t, unusually simple, posterior margin with two pale, rounded, glabrous lobes separated by narrow, U-shaped notch. Basistyle, b, elongate, on mesal face near outer end with slender, sclerotized, finger-like lobe, mesal face at base with abundant setulae. Interbase, i, with single strongly curved spine. Dististyles, d, terminal, relatively small, as compared with basistyle; outer style with body small, densely yellow setuliferous, with few scattered elongate setae; beak slender, tip narrow, microscopically scabrose at apex and along sides; inner style dilated at base and apex.

TYPE: Holotype, male, north slope of Mt. Dayman, Maneau Range, Territory of Papua, altitude 1550 meters, June 30 to July 13, 1953 (Tate).

Austrolimnophila (*Austrolimnophila*) *minor* is most similar to such species as *A. (A.) fluxa* Alexander, *A. (A.) nebrias* Alexander, and *A. (A.) terpsis* Alexander, differing especially in the venational details and structure of the male hypopygium, including the tergite and both dististyles.

TRIBE ERIOPTERINI

Trentepohlia (Mongoma) liponeura, new species

Figure 3

DIAGNOSIS: General coloration of thorax fulvous yellow, pleura clearer yellow; legs pale brown, tarsi and tips of tibiae snowy white; wings suffused with brown, stigma small, darker brown; cell M_2 open by atrophy of m.

DESCRIPTION: Male: Length, about 6 mm.; wing, 5 mm. Rostrum yellow, palpi with basal segment yellow, remainder brown. Antennae dark brown, broken beyond fourth segment. Head brownish black; anterior vertex very narrow, posterior vertex carinate.

Cervical region and pronotum brownish yellow, the latter with pair of long, erect, black setae. Mesonotal prescutum fulvous yellow medially, clearer yellow on sides; scutum and scutellum yellow, postnotum slightly darker; vestiture of anterior prescutum very small, sparse posterior bristles longer. Pleura yellow, slightly darker anteriorly; pteropleurite with four or five setae, one longer than others. Halteres pale brown, base of stem restrictedly paler, knobs large. Legs with coxae and trochanters yellow; femora pale brown, tips narrowly whiter; tibiae brown, tips and tarsi snowy white; fore femora near base with three modified setae, outer longer and more slender. Wings (fig. 3) with brown suffusion, stigma small, oval, darker brown; veins brown. Macrotrichia of veins reduced in number, as in genus, including a few on outer section of R_5 ; costal fringe moderately long. Venation: Sc_1 ending just before anterior end of R_2 , the latter very oblique, more than one-half longer than R_{3+4} ; cell M_2 open by atrophy of m; m-cu before fork of M; apical fusion of Cu_1 and first A very short.

Abdominal tergites brown, basal sternites more yellow, outer segments slightly darker.

TYPE: Holotype, male, east slopes of Goodenough Island, Territory of Papua, altitude 900 meters, October 24–30, 1953 (Brass).

The only other regional species of the subgenus having cell M_2 of the wings open is *Trentepohlia (Mongoma) amissa* Alexander, of Netherlands New Guinea, separable by the coloration of body, wings, halteres, and legs, and in venational details.

Gonomyia (Lipophleps) bigeminata, new species

Figures 4, 7

DIAGNOSIS: Size small (wing of male, about 4 mm.); rostrum black; antennae black, scape and pedicel paler; mesonotum dark gray, scutellum yellow, pleura black, pruinose, with longitudinal white stripe;

halteres yellow; legs brown; wings darker, Sc short, m-cu before fork of M; male hypopygium with lateral angles of tergite produced; two apical dististyles, outer a long slender blade; phallosome distinctive, including two pairs of elongate gonapophyses.

DESCRIPTION: Male: Length, about 3.4 mm.; wing, 4 mm. Female: Length, about 3.8 mm.; wing, 3.3 mm. Rostrum and palpi black. Antennae with scape dark brown, pedicel large, yellow, flagellum black; basal flagellar segments oval, becoming more elongate outwardly, verticils of male exceedingly long, as in subgenus, segments with long white pubescence; in female, flagellar segments oval, verticils shorter but still elongate. Head dark brownish gray, genae more yellow.

Pronotum and pretergites light yellow. Mesonotal prescutum and scutum dark gray, pseudosutural foveae black; scutellum obscure yellow; postnotum dark gray, anterior angle of mediotergite and dorsal pleurotergite paler. Pleura black, sparsely pruinose, with conspicuous white or pale yellow longitudinal stripe, narrowest on dorsal sternopleurite behind fore coxae, expanded behind above hind coxae. Halteres light yellow. Legs with coxae dark brown, tips paler; trochanters obscure yellow; femora brown, posterior pair somewhat paler, with brown tips; tibiae light brown, tarsi dark brown. Wings (fig. 4) dark, cells C and Sc light yellow; veins light brown. Costal fringe of male relatively long and conspicuous. Longitudinal veins beyond general level of origin of Rs with abundant macrotrichia; basad of this with a few on outer end of Sc, outer three-fourths of M, outer half of first A, and tip of second A. Venation: Sc short, Sc₁ ending before origin of Rs, Sc₂ near its tip; basal section of R_s long, transverse; inner end of cell first M₂ very narrow; m-cu about one-third of its length before fork of M.

Abdomen dark brown, including hypopygium. Male hypopygium (fig. 7) with tergite conspicuously produced into two divergent lobes, each with a few powerful setae. Dististyles, d, terminal, outer style acute, surface glabrous; inner style very small, apical third narrowed, tipped with two approximated, elongate setae, with other strong bristles on body of style, including a series of four on ventral margin; at base of style with small, thimble-shaped lobe, provided with dense yellow setae. Phallosome, p, conspicuous, including two sets of elongate gonapophyses; larger pair slender at midlength, dilated before apex, narrowed into long, black spines; second apophyses appearing as very slender spines from narrowly expanded bases. What appears to represent a phallosomic structure is a depressed-flattened plate, its outer lateral angles produced into narrow points densely provided with setae.

Types: Holotype, male, Biniguni, Gwariu River, Territory of Papua,

altitude 150 meters, July 27 to August 14, 1953 (Tate). Allotopotype, female.

The most similar regional species include *Gonomyia* (*Lipophleps*) *basicuspis* Alexander, *G. (L.) brachyglossa* Alexander, and *G. (L.) monura* Alexander, all differing evidently in the structure of the male hypopygium.

Gonomyia (*Lipophleps*) *brachyglossa* Alexander

Gonomyia (*Lipophleps*) *ophion brachyglossa* ALEXANDER, 1947, Ann. Mag. Nat. Hist., ser. 11, vol. 14, p. 567.

The type, a male, from Kokoda, Territory of Papua, altitude 1200 feet, taken in August or September, 1933, by Miss Cheesman. Territory of Papua: Biniguni, Gwariu River, altitude 150 meters, July 27 to August 14, 1953 (Tate).

Gonomyia (*Lipophleps*) *ocypete* Alexander

Gonomyia (*Lipophleps*) *ocypete* ALEXANDER, 1947, Ann. Mag. Nat. Hist., ser. 11, vol. 14, pp. 570-572.

Types from Hollandia, Netherlands New Guinea, October-November, 1944, collected by Harry Hoogstraal. Territory of Papua: Baiawa, Moi Biri Bay, altitude 0-30 meters, May 6-10, 1953 (Tate).

Teucholabis (**Teucholabis**) **dasytes**, new species

DIAGNOSIS: Size large (wing of female, 8 mm.); mesonotal prescutum polished yellow, with three almost confluent black areas; scutellum obscure yellow; pleura blacker, pteropleurite and posterior sclerites pale, silvery pubescent; halteres with knobs light yellow; legs conspicuously setiferous, femora yellow, with nearly terminal brown ring; wings yellow, patterned with pale brown, especially at and before cord, outer cells almost uniformly yellow; macrotrichia on outer ends of veins Cu₁ and first A; abdomen blacker, posterior borders of outer tergites narrowly paler.

DESCRIPTION: Female: Length, about 8.5 mm.; wing, 8 mm. Rostrum moderately long, about two-thirds of remainder of head, light brown basally, outer half brownish black; palpi black. Antennal scape dark brown, remainder of organ black; basal flagellar segments oval, outer ones more elongate; verticils exceeding segments, normal vestiture short, white. Head brownish black, not brightened posteriorly; anterior vertex slightly gray pruinose.

Pronotal scutum brown, black anteriorly, scutellum and pretergites yellow. Mesonotal prescutum polished, ground yellow, with three al-

most confluent black areas, central stripe not quite reaching suture, lateral areas large, subcircular; scutal lobes black, light yellow posteriorly; scutellum and central area of scutum obscure yellow, the former darker basally; mediotergite brownish black, pleurotergite more intensely polished black; vestiture of scutal lobes and scutellum long but sparse, anapleurotergite with long setae. Pleura with propleura and anepisternum black, remainder paler, especially dorsopleural region, pteropleurite, and posterior pleura, the two latter with silvery pubescence. Halteres with stem weakly dark, knob clear light yellow. Legs with fore coxae black, remaining coxae and trochanters yellow; femora yellow, with narrow, brown, subterminal ring about twice as extensive as yellow tip; tibiae and basal tarsal segments yellow, tips narrowly darker, outer tarsal segments darker; legs, especially femora, tibiae, and basitarsi, with unusually long, outspreading setae that are about twice as long as diameter of segment. Wings yellow, patterned with darker, including large oval stigma and paler brown washes at basal third of wing, over cord, and more narrowly at outer end of cell first M_2 ; cells beyond cord not darkened; veins yellow, darker in patterned areas, especially along cord. Macrotrichia on longitudinal veins beyond cord, including all outer medial veins, more sparse and delicate at outer ends of Cu_1 and first A. Venation: Sc long, Sc_1 ending about opposite two-thirds R_s ; R_{1+2} longer than R_2 ; cell first M_2 shorter than veins M_{1+2} and M_3 beyond it; m-cu about two-thirds its length beyond fork of M.

Abdomen black, apparently discolored by enclosed eggs; posterior borders of outer tergites paler, especially on subterminal segments; genital shield pale; ovipositor with cerci yellow, hypovalvae black.

TYPE: Holotype, female, north slope of Mt. Dayman, Maneau Range, Territory of Papua, altitude 1550 meters, June 30 to July 13, 1953 (Tate).

Teucholabis (*Teucholabis*) *dasytes* is readily separable from other regional species by the large size, very conspicuously setiferous legs, and the pattern of the femora and wings.

Erioptera (Meterioptera) thelema, new species

Figures 5, 9

DIAGNOSIS: Thorax almost uniformly medium brown, pleurotergite and posterior pleurites yellower; halteres dark brown; legs brown; wings pale brown, R_{2+3+4} long, exceeding three times basal section of R_5 ; male hypopygium with dististyles slender, longer outer style bifid at apex, inner style narrowed gradually to subacute tip; gonapophysis a strongly curved blackened structure, apex dilated, with subterminal flange.

DESCRIPTION: Male: Length, about 2.8 mm.; wing, 3.5 mm.; antenna, about 0.7 mm. Rostrum light brown, palpi black. Antennae with scape and pedicel brownish black, flagellum dark brown; pedicel large; basal two or three flagellar segments short and crowded, partly fused, especially proximal two; outer segments more elongate, slightly exceeding verticils. The unsexed paratype has the flagellar verticils longer and may prove to be not conspecific. Head dark brown; eyes large.

Pronotum and mesonotum almost uniformly medium brown; pretergites and humeral region of prescutum obscure yellow, pleurotergite yellower. Pleura chiefly dark brown, posterior sclerites yellower. Halteres dark brown, base of stem obscure yellow. Legs with fore and middle coxae brown, posterior pair yellower; trochanters obscure yellow; remainder of legs brown, with dark vestiture. Wings (fig. 5) pale brown, prearcular and costal regions slightly yellower; veins light brown. Venation: R_{2+3+4} long, exceeding three times basal section of R_5 ; R_{2+3} perpendicular, about twice R_2 ; m-cu just before fork of M; vein second A sinuous on outer half.

Abdomen dark brown, hypopygium slightly yellower. Male hypopygium (fig. 9) with apex of basistyle slightly produced into a low lobe that is provided with very short setulae. Dististyles, d, virtually terminal; outer style longer, glabrous, nearly straight, gently widened outwardly, apex bifid into two slender points; inner style about three-fourths as long, very gradually narrowed to subacute tip, lower margin before apex with two or three microscopic setuliferous tubercles. Gonapophyses, g, appearing as strongly curved, black structures, expanded at blunt outer end, before apex with recurved obtuse flange.

Types: Holotype, male, north slope of Mt. Dayman, Maneau Range, Territory of Papua, altitude 1550 meters, June 30 to July 13, 1953 (Tate). Paratopotypes, two broken specimens, one pinned with type.

The reference of the present fly to the subgenus *Meterioptera* is chiefly on the structure of the antennal flagellum. The species is readily distinguishable from the somewhat similar *Erioptera* (*Ctenerioptera*) *sziladyi* Alexander by the structure of the male hypopygium.

Erioptera (*Erioptera*) *lunicola* Alexander

Erioptera (*Erioptera*) *lunicola* ALEXANDER, 1932, Philippine Jour. Sci., vol. 48, pp. 630-631, pl. 3, fig. 41 (male hypopygium).

Described from Mindanao; widespread in the mountains of New Guinea. I cannot identify this with any Palearctic species, the most similar being *Erioptera* (*Erioptera*) *meijerei* Edwards, a yellow fly with halteres yellow throughout. Territory of Papua: North slope of Mt. Dayman, Maneau Range, altitude 1550 meters, June 30 to July 13,

1953 (Tate); altitude 2230 meters, May 17 to June 19, 1953 (Tate). East slopes of Goodenough Island, altitude 1600 meters, October 7-23, 1953 (Brass).

Erioptera (Erioptera) scolostyla, new species

Figure 10

DIAGNOSIS: General coloration of mesonotum brown, including pleura and prescutal disk; antennae brownish yellow; knobs of halteres black; legs light yellow; wings with vein second A long and sinuous; male hypopygium with both dististyles blackened, longer outer style with strong lateral spine at near midlength; inner style obtuse at tip; lateral gonapophyses short and stout, tips black.

DESCRIPTION: Male: Length, about 4.5-5 mm.; wing, 5.5-5.8 mm. Female: Length, about 5 mm.; wing, 6.5 mm. Rostrum light brown; palpi black. Antennae relatively long, if bent backward extending to beyond wing root, brownish yellow; flagellar segments elongate, with short, dense, white pubescence and a few slightly longer verticils, these shorter than segments. Head buffy, center of posterior vertex slightly darker.

Pronotum buffy, yellow on sides and behind. Mesonotal prescutum with broad, reddish brown, central stripe and confluent, darker, brownish gray, lateral areas, humeral and lateral regions light yellow; scutal lobes darker, remainder light brown; scutellum light brown, parascutella yellow; mediotergite reddish brown, anterolateral parts yellower, pleurotergite darker. Pleura chiefly infuscated, ventral sternopleurite and meron yellower; dorsopleural membrane yellow. Halteres with stem yellow, knob black. Legs with coxae reddish brown; trochanters yellow; remainder of legs clear light yellow, outer tarsal segments darker, especially the last. Wings yellow, prearcular and costal regions clearer yellow; veins light brown, yellow in brightened fields. Venation: Vein second A long, sinuous on outer half, ending about opposite posterior end of m-cu.

Abdominal tergites brown, sternites and hypopygium yellower. Male hypopygium (fig. 10) with the tergite, t, pale, posterior margin with V-shaped notch, lobes obtuse. Basistyle, b, with inner and outer lobes, latter with long, coarse, yellow setae, former with these shorter. Dististyles, d, black, subterminal; outer style bearing strong lateral spine at near midlength, outer half narrowed into strong, gently curved spine; inner style shorter, basal two-thirds stout, remainder narrowed, tip slightly dilated, obtuse, outer margin at end of enlarged part with two small setae. Phallosome, p, including a depressed central plate, its

truncated apex slightly darkened; inner apophyses pale, long and slender, slightly bent before elongate tips; lateral apophyses short and stout, narrowly acute tips black.

Types: Holotype, male, north slope of Mt. Dayman, Maneau Range, Territory of Papua, altitude 2230 meters, May 17 to June 19, 1953 (Tate). Allotype, female, east of Mt. Wilhelmina, Snow Mountains, Netherlands New Guinea, altitude 3600 meters, August 30 to September 8, 1938 (Toxopeus); Third Archbold Expedition to New Guinea (1938-1939). Paratypes, two males, with the allotype.

The most similar regional species is *Erioptera* (*Erioptera*) *lunicola* Alexander, which differs evidently in hypopygial characters.

Molophilus (Molophilus) brasscanus, new species

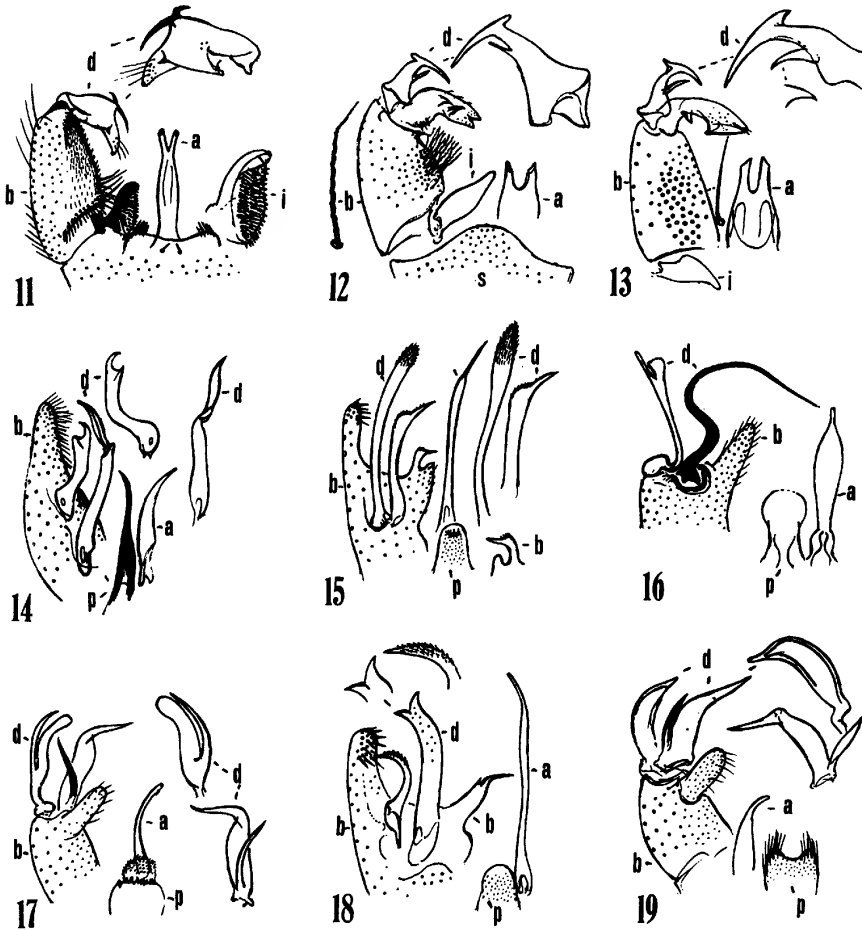
Figure 14

DIAGNOSIS: Belonging to *gracilis* group, *ruficollis* subgroup; size relatively large (wing of male, 4.8 mm.); mesonotum and pleura chiefly dark brown; wings brownish yellow, variegated by darker patches of trichia, base yellow; male hypopygium with vestiture of apical lobe of basistyle long and delicate, not spinoid; basal dististyle elongate, strongly twisted at near two-thirds of length; phallosome a slender, black rod that is extended into long spine; aedeagus shorter, pale.

DESCRIPTION: Male: Length, about 4 mm.; wing, 4.8 mm.; antenna, about 0.8 mm. Rostrum dark brown; palpi brownish black. Antennae relatively short; scape and pedicel yellow, flagellum brown; segments long-oval, with long, black verticils and relatively short, erect, white setae. Head light brown, posterior vertex more brownish gray.

Pronotal scutum infuscated laterally, with very long setae, scutellum and pretergites light yellow. Mesonotal prescutum virtually covered by confluent, brownish gray stripes, humeral region yellow; posterior sclerites of notum chiefly dark brown, the scutellum darker. Pleura dark brown, dorsopleural region paler. Halteres light yellow. Legs with coxae and trochanters yellow; remainder of legs broken. Wings faintly brownish yellow, base light yellow, costal border infuscated; less evident dusky clouds at origin of Rs, cord, and in cell second A; veins yellow, those at base clearer yellow; macrotrichia brown, with still darker patches on disk, especially at cord. Venation: R_2 lying distad of level of r-m; petiole of cell M_3 about twice m-cu; vein second A about opposite m-cu.

Abdomen dark brown, hypopygium more yellowish brown. Male hypopygium (fig. 14) with apical lobe of basistyle, b, produced into long, relatively slender lobe, provided with dense, long, delicate setae,



FIGS. 11-19. Male hypopygium. 11. *Toxorhina* (*Ceratocheilus*) *melanomera*, new species. 12. *Toxorhina* (*Ceratocheilus*) *streptotrichia*, new species. 13. *Toxorhina* (*Ceratocheilus*) *kokodae* Alexander. 14. *Molophilus* (*Molophilus*) *brasseanus*, new species. 15. *Molophilus* (*Molophilus*) *ethicus*, new species. 16. *Molophilus* (*Molophilus*) *serpentarius*, new species. 17. *Molophilus* (*Molophilus*) *stenacanthus*, new species. 18. *Molophilus* (*Molophilus*) *tateanus*, new species. 19. *Molophilus* (*Molophilus*) *vinnulus*, new species.

Symbols: a, aedeagus; b, basistyle; d, dististyle; i, interbase; p, phallosome; s, sternite.

with fewer coarse bristles; mesal edge of lobe near insertion of dististyles darker. Dististyles, d, subterminal, both black; outer style shorter, arcuated, at apex produced into curved spine, at its base with an oblique carina; basal style long, sinuous, at near two-thirds of length

strongly twisted into somewhat flat or hollow blade that narrows into short, acute point. Phallosome, p, distinctive, appearing as slender, smooth, black rod, outer third narrowed into long spine. Aedeagus, a, shorter, pale, narrowed to point.

TYPE: Holotype, male, east slopes of Goodenough Island, Territory of Papua, altitude 1600 meters, October 7-23, 1953 (Brass).

I take great pleasure in dedicating this species to Mr. Leonard J. Brass, leader and botanist of the Fourth Archbold Expedition. The fly is entirely distinct from all known regional members of the genus in the hypopygial structure, particularly the phallosome.

Molophilus (Molophilus) ethicus, new species

Figure 15

DIAGNOSIS: Belonging to *gracilis* group, *ruficollis* subgroup; mesonotum brownish gray, prescutum with reddish brown stripes, pleura and posterior sclerites of notum darker; knobs of halteres darker; legs dark brown; wings brownish yellow, veins slightly darker; abdomen dark brown, hypopygium brownish yellow; apical angle of basistyle produced into slender lobe; both dististyles simple, outer style longer, its apex with numerous dark setae; inner style shorter, apex narrowed into slender spine.

DESCRIPTION: Male: Length, about 3 mm.; wing, 3.8 mm.; antenna, about 0.9 mm. Rostrum and palpi black. Antennae relatively long; scape, pedicel, and first flagellar segment yellow, remainder of flagellum brown; segments with verticils unilaterally distributed, one near base of each segment, about one-half longer than segment, pale pubescence nearly as long, abundant, erect. Head light yellow; center of vertex extensively dark grayish brown.

Pronotum and pretergites light yellow. Mesonotal prescutum brownish gray, clearer laterally, disk with four more reddish brown stripes, intermediate pair more evident, narrowly and vaguely separated by pale line that is more evident posteriorly; pseudosutural foveae red; central region of scutum dark brown, lobes more reddish brown, yellow posteriorly; scutellum light yellow, base narrowly dark brown, parascutella reddish brown; mediotergite dark brown, sides and pleurotergite yellow. Pleura chiefly dark brown, dorsopleural membrane behind more brownish yellow. Halteres with stem dusky, knob dark brown. Legs with coxae yellowish brown; trochanters yellow; remainder of legs brown to dark brown; fore tibia with modified subbasal ring. Wings brownish yellow, base and costal field clearer yellow; veins brownish yellow, trichia light brown. Venation: R_2 a short distance

basad of level of r-m; petiole of cell M_3 from about two to two and one-half times m-cu; vein second A ending nearly opposite m-cu.

Abdomen dark brown, hypopygium more brownish yellow. Male hypopygium (fig. 15) with outer apical angle of basistyle, b, produced into slender lobe, at apex with numerous erect to subretorse setae, remaining vestiture of style long and coarse; mesal apical angle produced into small, sclerotized hook. Both dististyles, d, simple; outer style longer, gradually enlarged outwardly, with numerous relatively short, dark setae, apex acute; inner style about two-thirds as long, at apex bent at slight angle into slender spine; outer margin at point of angulation slightly tumid, provided with microscopic spinules. Phallosome, p, an oval plate, its apex obtuse, surface with long but relatively sparse setulae, margin and apex glabrous. Aedeagus, a, relatively long and slender, long outer end strongly narrowed.

TYPE: Holotype, male, north slope of Mt. Dayman, Maneau Range, Territory of Papua, altitude 700 meters, July 13 to 20, 1953 (Tate).

Molophilus (Molophilus) ethicus is entirely different from other described regional species in the structure of the male hypopygium, particularly the basistyle and both dististyles.

Molophilus (Molophilus) kokodanus Alexander

Molophilus (Molophilus) kokodanus ALEXANDER, 1947, Ann. Mag. Nat. Hist., ser. 11, vol. 14, pp. 275-276.

The types were from various stations in the Territory of Papua to an altitude of 8500 feet. Territory of Papua: Biniguni, Gwariu River, altitude 150 meters, July 27 to August 14, 1953 (Tate).

Molophilus (Molophilus) protervus Alexander

Molophilus (Molophilus) protervus ALEXANDER, 1961, Ann. Mag. Nat. Mist., ser. 13, vol. 4, pp. 25-26.

Territory of Papua: Male, north slope of Mt. Dayman, Maneau Range, altitude 1550 meters, June 20 to July 13, 1953 (Tate); paratype.

Molophilus (Molophilus) serpentarius, new species

Figure 16

DIAGNOSIS: Belonging to *gracilis* group, *ruficollis* subgroup; thorax yellow, pleura lighter in color; halteres yellow; legs black; wings faintly darker, veins with very long trichia that form darker areas on cord; male hypopygium with inner dististyle a very long and sinuous black rod, narrowed to terminal spine; aedeagus at near midlength unusually broad.

DESCRIPTION: Male: Length, about 3–3.2 mm.; wing, 3.8–4 mm.; antenna, about 0.9–0.92 mm. Rostrum and palpi black. Antennae relatively long, more than one-fourth of body, brownish black; flagellar segments long-oval, with very long, pale setae that are slightly longer than single, unilaterally arranged, black verticils. Head dark brown.

Pronotum and cervical region light yellow. Mesonotum dark yellow, scutellum darker; prescutal setae black, long, and conspicuous; an area including about a dozen very long, black setae on cephalic part of pleurotergite beneath wing root. Pleura uniformly light yellow. Halteres yellow. Legs with coxae and trochanters yellow; remainder of legs black. Wings faintly darker, base and costal region slightly yellower; veins pale brown, trichia brown, long, and conspicuous, still darker and forming definite areas over cord. Venation: R_2 about in transverse alignment with r-m; petiole of cell M_3 about one-half longer than m-cu; vein second A ending nearly opposite or just beyond posterior end of m-cu.

Abdomen brown to dark brown, basal sternites and hypopygium paler brown. Male hypopygium (fig. 16) with basistyle, b, short and stout, apical lobe relatively small, vestiture weak. Two virtually terminal dististyles, d, outer style pale, long and slender, from expanded base, near apex forking into two unequal arms, larger one slender, shorter arm triangularly dilated; inner style distinctive, appearing as very long and slender, sinuous, black rod, narrowed very gradually into terminal spine. Phallosome, p, a broadly oval glabrous plate, apex appearing truncate. Aedeagus, a, short, and unusually broad at near mid-length, the length about five times greatest breadth.

TYPES: Holotype, male, east slopes of Goodenough Island, Territory of Papua, altitude 1600 meters, October 7–23, 1953 (Brass). Paratopotypes, three males.

Molophilus (*Molophilus*) *serpentarius* is quite distinct from all known regional allies in the structure of the male hypopygium, particularly the long, sinuous, inner dististyle, which has suggested the specific name.

***Molophilus* (*Molophilus*) *stenacanthus*, new species**

Figure 17

DIAGNOSIS: Belonging to *gracilis* group, *ruficollis* subgroup, allied to *gressittianus*; mesonotum light brown, posterior sclerites and pleura darker; halteres yellow; legs black; wings with costal fringe unusually long and dense; male hypopygium with both dististyles bifid, outer arm of outer style about one-half as broad as inner arm, acutely

pointed at tip; inner style with strong basal spine; apex of phallosomic plate truncate, fimbriate.

DESCRIPTION: Male: Length, about 3.5 mm.; wing, 4 mm.; antenna, about 0.7 mm. Rostrum and palpi black. Antennae black, proximal flagellar segments slightly paler; flagellar segments long-oval, shorter than verticils. Head dark brown.

Pronotum yellow above; anterior pretergites pale yellow. Mesonotum light brown, posterior sclerites slightly darker; pleura darker brown. Halteres yellow. Legs with coxae and trochanters yellowish testaceous; remainder of legs black. Wings subhyaline; veins slightly darker than ground; trichia brown; costal fringe very long and dense.

Venation: R_2 lying immediately beyond level of r-m; petiole of cell M_3 almost twice m-cu; vein first A ending about opposite posterior end of m-cu.

Abdomen dark brown, hypopygium very slightly brighter. Male hypopygium (fig. 17) with apical lobe of basistyle, b, elongate, with strong setae. Dististyles, d, terminal, both bifid; outer style constricted at base, forking shortly beyond into two unequal blades, outer about one-half as broad as inner, acute at tip, inner arm broadly obtuse; inner style with outer third bent at right angle into long spine, with a further, stronger, blacker spine at base. Phallosome, p, a broad plate, its truncated apex fimbriate; above plate with a broadly oval structure that is densely provided with microscopic setulae. Aedeagus, a, narrowed gradually to tip, shorter than either dististyle.

TYPE: Holotype, male, east slopes of Goodenough Island, Territory of Papua, altitude 1600 meters, October 7–23, 1953 (Brass).

Molophilus (Molophilus) stenacanthus is allied to *M. (M.) gressittianus* Alexander and *M. (M.) vinnulus*, new species, but differs from both in the structure of the male hypopygium, particularly the dististyles.

***Molophilus (Molophilus) tateanus*, new species**

Figure 18

DIAGNOSIS: Belonging to *gracilis* group, *ruficollis* subgroup; mesonotal prescutum reddish brown, posterior sclerites of notum and pleura darker brown; knobs of halteres dark brown; wings weakly darkened, prearcular and costal fields light yellow; male hypopygium with outer apical lobe of basistyle slender, with stout spinoid setae; mesal area of basistyle produced into spine; dististyles unequal, larger inner style shallowly forked at apex; aedeagus long and slender.

DESCRIPTION: Male: Length, about 3–3.2 mm.; wing, 3.8–4.2 mm. Rostrum dark brown; palpi black. Antennae with scape and pedicel

light yellow; flagellum broken. Head brown, center of posterior vertex gray.

Pronotum light brown medially, lateral angles and pretergites conspicuously whitened. Mesonotal prescutum and scutum reddish brown, faintly dusted with gray; scutellum dark at base, broadly obscure yellow behind; postnotum darker brown. Pleura dark reddish brown. Halteres with stem dusky, knob dark brown. Legs with coxae and trochanters testaceous yellow; remainder of legs broken. Wings weakly darkened, prearcular and costal fields light yellow; veins brownish yellow, trichia brown. Venation: R_2 lying shortly before level of r-m; petiole of cell M_3 about twice oblique m-cu; vein second A ending nearly opposite proximal end of m-cu.

Abdomen dark brown, hypopygium more brownish yellow. Male hypopygium (fig. 18) with outer apical lobe of basistyle, b, slender, its outer half with numerous stout, spinoid setae; mesal area produced into narrow, flat blade that terminates in long, slender spine. Dististyles, d, subterminal, unequal; outer style smaller, appearing as slender, curved rod from enlarged base, outer half black, narrowed to acute point, apical part with appressed spinules; inner style a flat straight rod, shallowly split at apex into two slightly unequal, short points, outer third of style with a few scattered, setigerous punctures. Phallosomic plate, p, obtuse at apex, surface with abundant short setulae. Aedeagus, a, long and slender, slightly more dilated before slender apex.

TYPES: Holotype, male, north slope of Mt. Dayman, Maneau Range, Territory of Papua, altitude 700 meters, July 13–20, 1953 (Tate). Paratopotype, male.

I am pleased to name this distinct fly for the collector of this excellent series of crane flies from the Maneau Range, Mr. Geoffrey M. Tate. It differs from all other Papuan species in the hypopygial structure, particularly the basistyle and both dististyles. The most similar species is *Molophilus* (*Molophilus*) *ethicus*, new species.

***Molophilus* (*Molophilus*) *vinnulus*, new species**

Figure 19

DIAGNOSIS: Belonging to *gracilis* group, *ruficollis* subgroup; allied to *gressittianus*; thorax fulvous, darker posteriorly; halteres yellow; legs black; wings pale yellow, restrictedly patterned with brown; male hypopygium with both dististyles terminal, bifid; phallosomic plate small, with elongate setae, posterior border gently emarginate, lateral angles slightly produced.

DESCRIPTION: Male: Length, about 3.8–4 mm.; wing, 4.5–5 mm.; antenna, about 0.7–0.8 mm. Female: Length, about 4.5–5 mm.; wing, 5–5.5 mm. Rostrum and palpi brownish black. Antennae with scape light yellow, remainder brownish black; flagellar segments oval, the outer ones longer; verticils exceeding either segments or pale pubescence. Head dark brown.

Pronotum and pretergites light yellow. Mesonotal prescutum and scutum fulvous, humeral region of former yellower; pseudosutural foveae red; scutellum infuscated, yellow laterally on sides and on parascutella; mediotergite dark on central part, remainder, with pleurotergite, fulvous. Pleura weakly infuscated above, ventral portion yellow. Halteres pale yellow. Legs with coxae and trochanters yellow; remainder of legs brownish black, genua narrowly pale. Wings pale yellow, restrictedly patterned with brown, including darker areas on anterior cord, paler ones on proximal parts of cells C and Sc and before tip of vein second A; veins yellow, trichia darker. Venation: R_2 lying shortly beyond level of r-m; petiole of cell M_3 relatively long, varying from two to nearly three times m-cu; vein second A slightly sinuous, ending about opposite m-cu.

Abdomen dark brown, hypopygium and ovipositor more brownish yellow or fulvous. Male hypopygium (fig. 19) with lobe of basistyle, b, relatively small, apical in position, vestiture relatively long and delicate. Dististyles, d, terminal; outer style divided close to base into two flat blades, subequal in size, one a little longer, inner style longer, its axis extended into long, black point, close to base on outer face with strong spine. Phallosomic plate, p, small, posterior border gently emarginate, lateral angles slightly produced, with elongate setae. Aedeagus, a, relatively small, subequal in length to outer dististyle.

TYPES: Holotype, male, north slope of Mt. Dayman, Maneau Range, Territory of Papua, altitude 2230 meters, May 17 to June 19, 1953 (Tate). Allotopotype, female, pinned with type. Paratopotypes, males and females.

Molophilus (Molophilus) vinnulus is generally similar to *M. (M.) gressittianus* Alexander in the genitalic structure, differing especially in the dististyles and phallosomic plate.

Styringomyia ensifera Edwards

Styringomyia ensifera EDWARDS, 1924, Ann. Mag. Nat. Hist., ser. 9, vol. 13, pp. 273–274, figs. (male hypopygium, ovipositor).

Described from the Territory of New Guinea. Territory of Papua: Mafulu, altitude 4000 feet, January, 1934 (Cheesman), in British Museum (Natural History). North slope of Mt. Dayman, Maneau Range,

altitude 700 meters, July 13–20, 1953 (Tate).

Styringomyia papuana Edwards

Styringomyia papuana EDWARDS, 1924, Ann. Mag. Nat. Hist., ser. 9, vol. 13, pp. 271–272, figs. (male hypopygium, ovipositor).

Described from the Territory of New Guinea. Territory of Papua: Menapi, Cape Vogel Peninsula, altitude 0–30 meters, March 21 to May 4, 1953 (Tate). Baiawa, Moi Biri Bay, altitude 0–30 meters, May 6–10, 1953 (Tate).

Toxorhina (Ceratocheilus) hoogstraali Alexander

Toxorhina (Ceratocheilus) hoogstraali ALEXANDER, 1947, Ann. Mag. Nat. Hist., ser. 11, vol. 14, pp. 279–280.

Types from Hollandia, Netherlands New Guinea; also known from the Territory of New Guinea. Territory of Papua: North slope of Mt. Dayman, Maneau Range, altitude 700 meters, July 13–20, 1953 (Tate).

Toxorhina (Ceratocheilus) imperatrix Alexander

Toxorhina (Ceratocheilus) imperatrix ALEXANDER, 1947, Ann. Mag. Nat. Hist., ser. 11, vol. 14, pp. 278–279.

Types from Cyclops Mountains, Netherlands New Guinea, altitude 3500–4500 feet, taken in March, 1936, by Miss Cheesman. Territory of Papua: North slope of Mt. Dayman, Maneau Range, altitude 2230 meters, May 17 to June 19, 1953 (Tate). East slopes of Goodenough Island, altitude 1600 meters, October 7–23, 1953 (Brass).

Toxorhina (Ceratocheilus) melanomera, new species

Figure 11

DIAGNOSIS: Mesonotal prescutum and scutal lobes dark brown, posterior sclerites light gray; knobs of halteres darkened; wings subhyaline; male hypopygium with lateral tergal angles with few strong setae; mesal face of basistyle with large, yellow, densely setiferous lobe; interbase a subtriangular black structure with strong setae; beak of dististyle with long setae, outer margin with two unequal spines that arise close together; aedeagus elongate, shallowly forked into two short arms.

DESCRIPTION: Male: Length, excluding rostrum, about 4.5 mm.; wing, 4.9 mm.; rostrum, about 5 mm. Rostrum brownish black, subequal in length to wing. Antennae with scape testaceous, pedicel yellow, near apex with several strong, black setae, flagellum black. Head whitish gray in front, clearer gray behind; anterior vertex subequal to

diameter of scape, without corniculus.

Cervical region light brown. Mesonotal prescutum with disk uniformly dark brown, lateral margins light gray; scutal lobes dark brown; scutellum and mediotergite light gray, parascutella and pleurotergite brownish yellow. Pleura light brown, dorsal sternopleurite and posterior pleurites paler yellow. Halteres with stem yellow, knob medium brown. Legs with fore coxae infuscated in front, remaining coxae yellow; trochanters yellow; remainder of legs brownish yellow but appearing darker from abundant black setae. Wings subhyaline, base narrowly yellower; veins brown, trichia black. Macrotrichia on Rs, both sections of R_5 , most of M_{1+2} , and outer half of M_3 . Venation: Sc_2 ending just before origin of Rs, the latter a trifle shorter than basal section of R_5 ; anterior branch of Rs oblique, gently sinuous, without trichia; cell R_5 strongly narrowed at apex; cell M_2 open by atrophy of m; m-cu nearly its own length beyond fork of M.

Abdominal tergites dark brown, sternites and hypopygium yellower. Male hypopygium (fig. 11) with central region of posterior border of tergite, t, slightly produced, posterior border very gently emarginate, low, obtuse, lateral angles each with about five stout, spinoid setae. Basistyle, b, with large yellow lobe, its posterior end narrowed, very densely covered with appressed yellow setae, more dilated cephalic part of lobe with strong setae, long and conspicuous on inner angle. Interbase, i, distinctive, appearing as subtriangular black structure, inner face with numerous stout setae. Dististyle, d, distinctive, beak narrowed, extreme tip a small black knob, surface of beak with a few long setae; face of style near base of beak with tiny triangular point; outer margin of style at near midlength with two divaricate spines, very unequal in size, longer directed outwardly, short, curved spine pointed basad. Aedeagus, a, unusually long and narrow, outer fifth divided into two short, gently divergent arms.

TYPE: Holotype, male, north slope of Mt. Dayman, Maneau Range, Territory of Papua, altitude 1550 meters, June 30 to July 13, 1953 (Tate).

Superficially, *Toxorhina* (*Ceratocheilus*) *melanomera* most resembles *T. (C.) birói* Alexander and *T. (C.) trichoneura* Alexander, but differs most evidently in the very distinctive male hypopygium, including the tergite, basistyle, interbase, dististyle, and aedeagus.

Toxorhina (*Ceratocheilus*) *streptotrichia*, new species

Figures 12, 13

DIAGNOSIS: Allied to *kokodae*; mesonotum light cinnamon brown,

posterior sclerites darker; pleura yellow, with broad, brownish black, longitudinal stripe; wings brownish, weakly patterned with darker; veins beyond cord with macrotrichia, lacking on anterior branch of Rs and M_{3+4} ; male hypopygium with outer crest of outer dististyle obtuse; setae of mesal face of basistyle strongly twisted.

DESCRIPTION: Male: Length, excluding rostrum, about 9 mm.; wing, 6.6 mm.; rostrum, about 9.5 mm. Rostrum longer than body, brownish black. Antennae black. Head black; anterior vertex narrow, elevated between antennal bases.

Cervical region black. Mesonotal prescutum and scutum light cinnamon brown, scarcely patterned; disk of scutellum dark, posterior border obscure yellow; mediotergite brown, lateral and posterior borders yellower. Pleura light yellow, with broad, brownish black, dorsal stripe, passing beneath root of halteres posteriorly. Halteres with stem yellow, knob infuscated. Legs with coxae pale yellow, trochanters a little darker; remainder of legs brownish yellow, appearing darker because of abundant black setae, terminal tarsal segments paling to yellowish white. Wings dark, cord and anterior branch of Rs slightly darker, centers of cells before cord paler; veins brown. Longitudinal veins beyond cord with macrotrichia, lacking on anterior branch of Rs, M_{3+4} , and most of M_4 . In *kokodae*, trichia more sparse, especially on Rs and posterior branches of M. Venation: Anterior branch of Rs gently arcuated; distance on costa between R_{1+2} and R_3 more than one-third of length of latter.

Abdomen light brown, base and lateral borders of outer segments darker; hypopygium light brown. Male hypopygium (fig. 12) with posterior border of sternite, s, strongly convex. Basistyle, b, with setae of mesal face long, yellow, conspicuously twisted virtually throughout their length. Outer dististyle, d, with outer crest small, apex obtuse, hyaline blade on lower margin very slender; inner style bifid at tip. Arms of aedeagus, a, very short.

TYPE: Holotype, male, east slopes of Goodenough Island, Territory of Papua, altitude 1600 meters, October 7–23, 1953 (Brass).

Although the present fly is closely allied to *Toxorhina* (*Ceratocheilus*) *kokodae* Alexander, it appears to be distinct in the characters indicated above, particularly the structure of the hypopygium. Figure 13 shows the male hypopygium of *kokodae* for comparison.